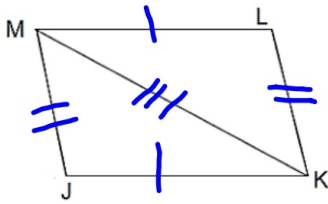


1. Complete the proof.

Given: $\overline{JK} \cong \overline{LM}$, $\overline{JM} \cong \overline{LK}$

Prove: $\triangle JKM \cong \triangle LMK$



Statements	Justifications
$\overline{JK} \cong \overline{LM}$	Given
$\overline{JM} \cong \overline{LK}$	\parallel
$\overline{KM} \cong \overline{MK}$	Reflexive
$\triangle JKM \cong \triangle LMK$	SSS

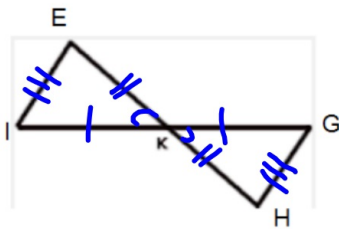
$\triangle LMK$

2. Complete the proof.

Given: $\overline{EI} \cong \overline{GH}$

K is the midpoint of \overline{GI} and \overline{EH} .

Prove: $\triangle EKI \cong \triangle HKG$

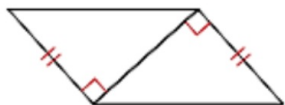


Statements	Justifications
$\overline{EI} \cong \overline{GH}$	Given
K is the midpoint of \overline{GI}	\parallel
$\overline{EK} \cong \overline{HK}$	Definition of midpoint
$\overline{KI} \cong \overline{KG}$	Given
$\triangle EKI \cong \triangle HKG$	Def of midpt SSS

For #3-#8, are the two triangles congruent? If so, which postulate, SSS or SAS, is being used?

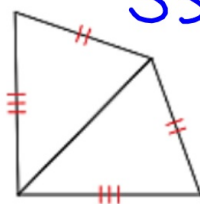
3.

SAS



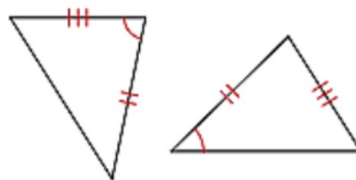
4.

SSS

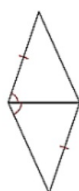


5.

None

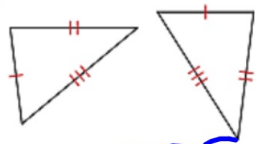


6.



None

7.



SSS

8.



SAS

HW #22 Answers:

1. $\triangle PQR \cong \triangle VWX$ 2. $\triangle ACB \cong \triangle EFD$ 5. a. Reflexive Property b. ASA

6.

Statements	Reasons
$\angle BAC \cong \angle DAC$	Given
$AC \perp BD$	Given
$AC \cong AC$	Reflexive Prop.
$\angle DCA \cong \angle BCA$	Rt. angles are congruent
$\triangle ABC \cong \triangle ADC$	ASA

7.

Statements	Reasons
$QR \cong TS$	Given
QR is parallel to ST	Given
$\angle TQR \cong \angle QTS$	Alt. Interior Angles
$\angle QTR \cong \angle TQS$	Alt. Interior Angles
$\triangle QRT \cong \triangle TSQ$	AAS

13. $\triangle PMP \cong \triangle NMO$; ASA

14. $\triangle UTS \cong \triangle RST$; AAS

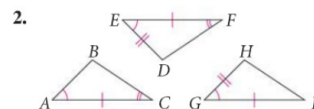
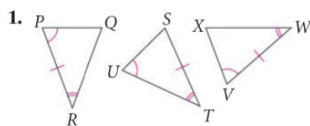
15. $\triangle ZVY \cong \triangle WVY$; AAS

17. Yes; If 2 angles of a triangle are congruent to 2 angles of another triangle, then the 3rd are also congruent. So, an AAS proof can be rewritten as an ASA proof

18. $\angle FDE \cong \angle GHI$; $\angle DFE \cong \angle HGI$

19. No; also need one pair of corresponding sides congruent.

Name two triangles that are congruent by the ASA Postulate.

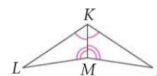


5. **Developing Proof** Complete the proof by filling in the blanks.

Given: $\angle LKM \cong \angle JKM$,
 $\angle LMK \cong \angle JMK$

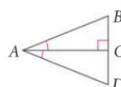
Prove: $\triangle LKM \cong \triangle JKM$

Proof: $\angle LKM \cong \angle JKM$ and $\angle LMK \cong \angle JMK$ are given. $\overline{KM} \cong \overline{KM}$ by the a. ? Property of Congruence.
 $\triangle LKM \cong \triangle JKM$ by the b. ? Postulate.



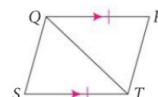
Proof 6. **Given:** $\angle BAC \cong \angle DAC$
 $\overline{AC} \perp \overline{BD}$

Prove: $\triangle ABC \cong \triangle ADC$



7. **Given:** $\overline{QR} \cong \overline{TS}$, $\overline{QR} \parallel \overline{ST}$

Prove: $\triangle QRT \cong \triangle TSQ$



Write a congruence statement for each pair of triangles. Name the postulate or theorem that justifies your statement.



17. **Writing** Anita says that you can rewrite any proof that uses the AAS Theorem as a proof that uses the ASA Postulate. Do you agree with Anita? Explain.

18. $\angle E \cong \angle I$ and $\overline{FE} \cong \overline{GI}$. What else must you know to prove $\triangle FDE \cong \triangle GHI$ by AAS? By ASA?

19. **Reasoning** Can you prove the triangles at the right congruent using ASA or AAS? Justify your answer.



SSS and SAS are used to prove that two triangles are congruent.

There are other Postulates and Theorems that also prove triangles are congruent.

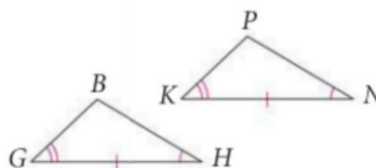
Sec 4-3

Postulate 4-3

Angle-Side-Angle (ASA) Postulate

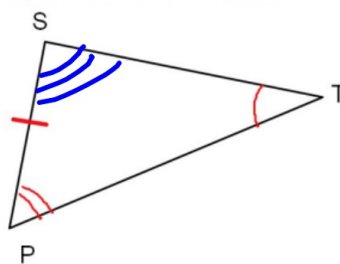
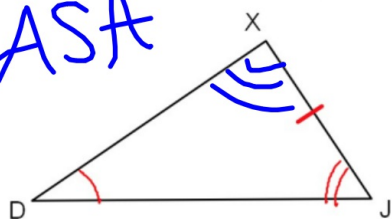
If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the two triangles are congruent.

$$\triangle HGB \cong \triangle NKP$$



Are these triangles congruent by SSS, SAS, or ASA Postulates?

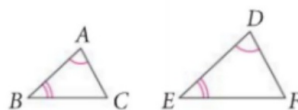
ASA



Theorem 4-1

If two angles of one triangle are congruent to two angles of another triangle, then the third angles are congruent.

$$\angle C \cong \angle F$$

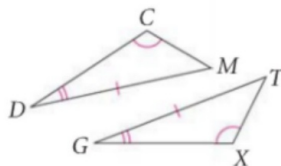


Theorem 4-2

Angle-Angle-Side (AAS) Theorem

If two angles and a nonincluded side of one triangle are congruent to two angles and the corresponding nonincluded side of another triangle, then the triangles are congruent.

$$\triangle CDM \cong \triangle XGT$$

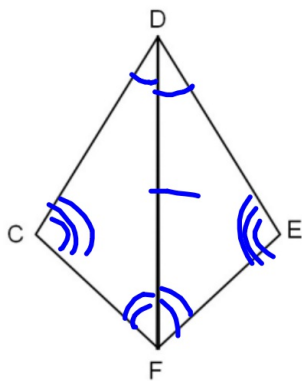


Ways to prove triangles are congruent:

1. SAS
2. SSS
3. AAS
4. ASA

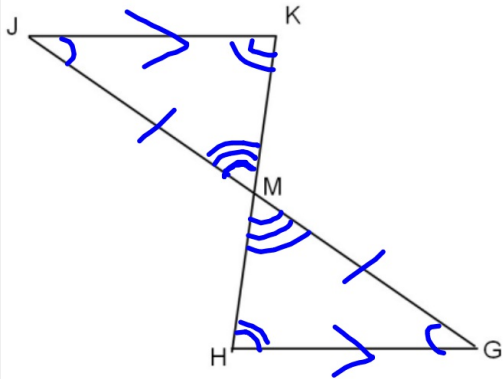
Is each pair of triangles congruent? If yes, give a reason and write a congruence statement.

1. Given DF bisects both $\angle CDE$ and $\angle CFE$



ASA

2. $\overline{GH} \parallel \overline{JK}$ and M is the midpoint of \overline{JG} .



ASA
AAS

Classwork: Practice 4-2 & 4-3 Worksheet

IXL #12 - K.1 & K.2 due Friday at 4pm!